

Appl. No. 10/643,394

Reply to Office Action of September 27, 2005

REMARKS/ARGUMENTS

Applicants hereby acknowledge the election of Group I, claims 1-6. The non-elected claims were indicated to be withdrawn (in the AMENDMENT of July 21, 2005), although they were amended to depend from the elected product claim for the possibility of rejoinder.

The Examiner rejects claims 1, 3, 4 and 6 as anticipated by Held et al. and claims 1 and 5 as obvious over Held et al. in view of Tsuchiya et al. or Mukouyoshi et al.

As argued in the AMENDMENT filed July 21, 2005, Held et al. discloses a different type of ink jet recording sheet.

The Examiner questions applicants characterization of Held and particularly that the recording sheet disclosed in Held et al. does not include a hydrophilic binder which is cross-linked with ionizing radiation.

The cross-linked hydrophilic binder as now claimed, is an important feature of the invention. In particular, it allows for forming a uniform porous layer which results in a high void ratio having higher ink-absorbability and higher resistance to creases and cracks of film by a smaller amount of the binder (i.e. a

Appl. No. 10/643,394
Reply to Office Action of September 27, 2005

weight ratio of the micro particles of silica to the binder in the porous layer is increased). This ratio is required in the present claims and not shown or suggested in Held et al.

Held et al. does not disclose the cross-linked hydrophilic binder with the claimed degree of polymerization. With respect to the cross-linked hydrophilic binder the Examiner states that

"to some degree the polymer will be cross-linked through side chains as instantly claimed, even if, at the same time, the ink is fixed in the layer".

This is not a disclosure of polymerization degree required by the claims.

As noted above, claim 1 requires that the weight ratio of the micro particles of silica to the binder in the porous layer be high (weight ratios are defined in claim 1). The references of Held et al, Tsuchiya et al. and Mukouyoshi et al. do not disclose or suggest this ratio.

Applicants are aware of the Examiner's position that Held et al. discloses that

"a ratio of filler to polymer will vary with the particular components and substrate, but generally be within the range of 7 to 1, to 0.5 to 1 (col. 10, lines 7-11). "

Appl. No. 10/643,394

Reply to Office Action of September 27, 2005

However, it is submitted that the ratio does not overlap with that of the instant claims as explained below.

The ratio described in Held et al. is not the ratio of filler to cross-linked polymer as required by the present claims, but filler to non-cross-linked polymer. Since Held et al. discloses that the irradiation for cross-linking the binder is not necessary when preparing the ink-jet recording sheet, a ratio of filler to cross-linked polymer is not disclosed or relevant to Held et al. Even if the Examiner's reasoning is correct, that there must be some cross-linking, the ratio of filler to cross-linked polymer estimated by one of ordinary skill in the art should be well below the claimed range of the ratio.

In the table on page 76 of specification, for example, recording papers 1 and 17 show unexpected results. Recording paper 1 (inventive) include a porous layer having the cross-linked polymer obtained by irradiation. Recording paper 17 (comparative) include a porous layer having non-cross-linked polymer. When one compares 1 and 17 there are clearly major gaps in view of smoothness, cracks, ink absorbability, fissures by folding and ink absorbing volume.

Appl. No. 10/643,394

Reply to Office Action of September 27, 2005

In view of the above, the claimed invention is not anticipated by Held et al., and it is not obvious for one of ordinary skill in the art to reach the claimed inventions even if he or she combine Held et al. with Tsuchiya et al. and Mukouyoshi et al. because the references do not disclose the claimed weight ratio of the micro particles of ground silica to the hydrophilic binder in the porous layer of 2:1 to 50:1.

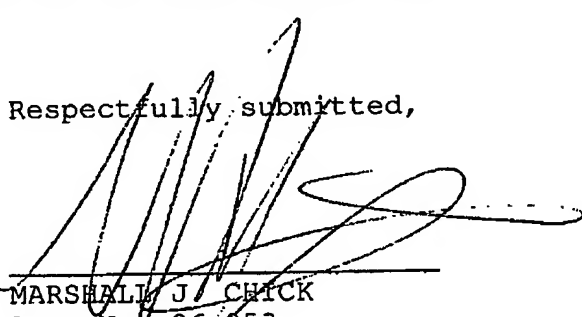
Furthermore the references do not disclose the unexpected results obtainable by the claimed invention.

As to the double patenting, if the nature of allowed subject matter requires it and it is otherwise appropriate, applicants will file a Terminal Disclaimer.

In view of the above, it is submitted that the present invention is not shown or suggested by the cited art. Withdrawal of the rejections and allowance of the application are respectfully requested.

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Respectfully submitted,


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